

Festina Lente.

Boston Normal School of
Gymnastics.



1892-1893.

"The mind more often faints from the severity of study than from the severity of gymnastics." — PLATO.

"A good education is that which tends most to the improvement of mind and body." — PLATO.

"Bodily exercise, when compulsory, does no harm; but knowledge which is acquired under compulsion has no hold on the mind." — PLATO.

Boston Normal School of Gymnastics.

SECOND ANNUAL CATALOGUE OF THE
INSTRUCTORS, STUDENTS,
AND GRADUATES,

WITH

A STATEMENT OF THE COURSE OF INSTRUCTION
AND EXAMINATIONS.

1892-1893.

BOSTON:

Geo. H. Ellis, Printer, 141 Franklin Street.

1893.

Boston Normal School of Gymnastics,

PAINE MEMORIAL BUILDING, 9 APPLETON STREET.

AMY MORRIS HOMANS, DIRECTOR.

CALENDAR FOR 1891-92.

School year began	Sept. 28, 1891.
Winter Examinations	December, 1891.
Second term began	Jan. 4, 1892.
Spring Examinations	March, 1892.
Third term began	April 11, 1892.
Final Examinations	June, 1892.
Graduation Exercises	Thursday, June 9, 1892.

CALENDAR FOR 1892-93.

School year began	Tuesday, Sept. 27, 1892.
Winter Examinations	December, 1892.
Second term began	Jan. 2, 1893.
Spring Examinations	March, 1893.
Third term began	April 9, 1893.
Final Examinations	June, 1893.
Graduation Exercises	June 6, 1893.

CALENDAR FOR 1893-94.

School year will begin	Tuesday, Sept. 26, 1893.
Winter Examinations	December, 1893.
Second term will begin	Jan. 2, 1894.
Spring Examinations	March, 1894.
Third term will begin	April 9, 1894.
Final Examinations	May, 1894.
Graduation Exercises	June 5, 1894.

VACATIONS.

Vacations and holidays will correspond to those of the Boston public schools.

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OFFICE.

Boston Normal School of Gymnastics.

DESIGN.

THE BOSTON NORMAL SCHOOL OF GYMNASTICS was established in 1889 by Mrs. Mary Hemenway. The plan of work adopted is to give thorough instruction in the Ling, or Swedish, system of gymnastics to men and women who desire to make themselves competent to direct gymnasia or to conduct physical training, with an educational and hygienic aim, on scientific principles and by safe and effective methods.

Theoretical and practical instruction will go hand in hand throughout the course. Lectures and demonstrations in the sciences on which gymnastics is based, especially in physiology and anatomy, will be given daily.

Lectures on the theory of gymnastics will be given with a view to show the scientific foundation of the system of Swedish gymnastics. These will also afford a means of acquiring an intelligent insight into the whole field of gymnastics, and furnish the means of judging of any system of gymnastics.

The Swedish pedagogical gymnastics is a work of biological engineering. It employs various movements and positions of the body as the means for its end. The movements are not practised for their own sake as an end in themselves, — not simply for the sake of learning how to do them. But the persistent, methodically regulated doing of them is insisted upon for the sake of the reactions they produce upon the human system. By training under Swedish pedagogical gymnastics, these reactions are cumulative, producing related effects, manifesting themselves in the development of such qualities as make the physique better as an organic nervo-

muscular machine and a better basis for higher moral and intellectual life.

Externally, the results are perceptible in an erect attitude and graceful carriage; straight back and correct apposition of the shoulder-blades; capacious, well-formed chest, and great amplitude in the respiratory movements of the ribs; a symmetrically developed form, animated by a healthy muscular play; exact and easy control of the voluntary domain; firm and graceful balance and gait; fundamental physical skill and easy susceptibility to the development of such specialized skill as the various practical purposes of life may demand;—self-reliance, self-control, courage, and a joyous disposition.



LIBRARY.

Director, Officers of Instruction, and Lecturers.

AMY MORRIS HOMANS, *Director.*

CLAES J. ENEBUSKE, A.M., PH.D. (Graduate of the Royal University, Lund, Sweden), *Principal of Instruction,
Instructor and Demonstrator of Applied Anatomy, Physiology,
and Swedish Pedagogical and Medical Gymnastics.*

EMMA L. CALL, M.D.,
Instructor and Demonstrator of Descriptive and Topographical Anatomy, Practical Hygiene, and Pathology.

JOSIAH ROYCE, A.M., PH.D., Professor of Philosophy, Harvard University,
Lecturer on Psychology and Pedagogy.

H. P. BOWDITCH, M.D., Dean of Harvard Medical School,
Lecturer on Anthropometry.

W. M. CONANT, M.D., Assistant Demonstrator of Anatomy, Harvard Medical School,
Lecturer on Emergencies.

CHARLES R. CROSS, S.B., Professor of Physics, Massachusetts Institute of Technology,
In charge of the Instruction in Physics.

THOMAS M. DROWN, M.D., Professor of Chemistry, Massachusetts Institute of Technology,
In charge of the Instruction in Chemistry.

WILLIAM T. SEDGWICK, PH.D., Professor of Biology, Massachusetts Institute of Technology,
In charge of the Instruction in General Biology, Comparative Anatomy, Histology, Physiology, and Sanitary Science.

F. C. ROBERTSON, A.M., Instructor in Trinity College,
Voice Training.

C. O. LOUIS COLLIN, of Sweden,
Instructor in Practical Gymnastics.

MARGARET S. WALLACE, Graduate of Boston Normal School of
Gymnastics, *Instructor.*

CLARA E. SHEPPARD, Graduate of Boston Normal School of Gym-
nastics, *Instructor.*

ETHEL PERRIN, Graduate of Boston Normal School of Gymnas-
tics, *Assistant.*

Course of Instruction.

JUNIOR YEAR THEORETICAL

20 hours physics with demonstrations.*

30 hours chemistry with laboratory work.*

50 hours general biology with laboratory work.*

50 hours comparative (vertebrate) anatomy with laboratory work.*

100 hours applied anatomy, physiology, and theory of gymnastics.

35 hours descriptive and topographical anatomy and practical hygiene.

4 hours anthropometry.

15 hours emergencies.

JUNIOR YEAR PRACTICAL

Daily drill in pedagogical gymnastics.

Daily review in pedagogical gymnastics and instruction in teaching.

Weekly instruction in gymnastic games.

Weekly instruction in dancing and deportment.

SENIOR YEAR THEORETICAL

50 hours theory of gymnastics and art of teaching.

20 hours pathology and hygiene.

120 hours physiology and histology with abundant laboratory work.*

15 hours sanitary science.*

78 hours psychology and pedagogy.

SENIOR YEAR PRACTICAL

85 hours in teaching classes of children.

85 hours in technicalities of medical gymnastics.

Daily drill in pedagogical gymnastics.

Semi-weekly instruction in fencing.

Practical exercises in applied anthropometry.

* Arranged for 1893-94. The courses in physics, chemistry, general biology, comparative anatomy, physiology, histology, and sanitary science are given at the Massachusetts Institute of Technology. The students of the Boston Normal School of Gymnastics are there received as "special students" under the regular rules of the Institute.

Requirements for Admission.

No one will be received as a normal student who has not a general education equivalent to graduation from a high school. No one with organic disease or serious functional disorder can be admitted. Applications for admission must be indorsed by at least two well-known persons. The term for 1893-94 will begin on Tuesday, September 26. The remainder of that week will be devoted to physical examinations and measurements. It is absolutely necessary that students be promptly on hand for this purpose.

All students are received on probation for one month.

Examinations and Diplomas.

EXAMINATIONS.

The school year begins in September, and is divided into three terms. The first examinations will take place just before Christmas, the second before Easter, and the final during the first week in June.

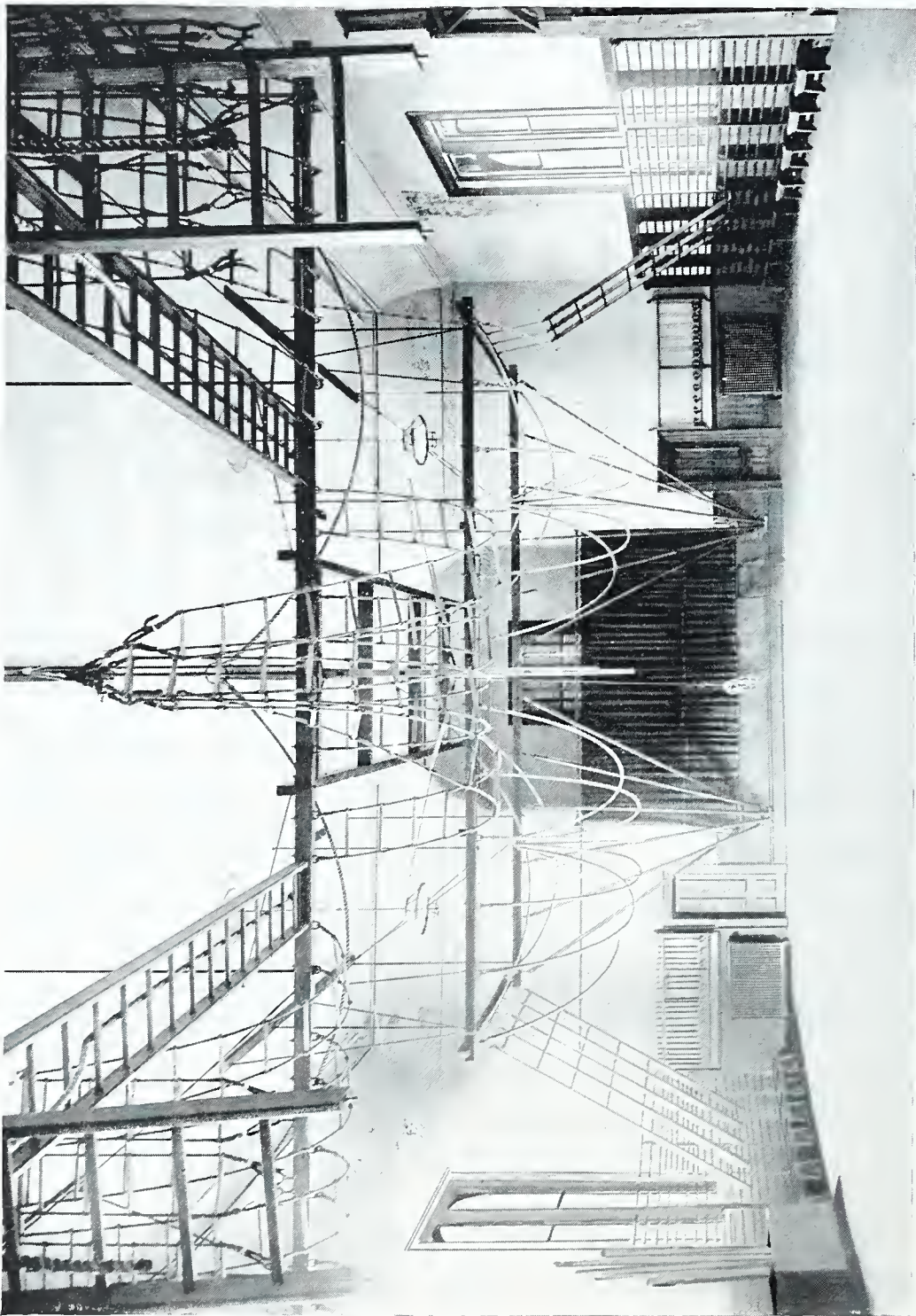
DIPLOMAS AND CERTIFICATES.

Students whose general average in all theoretical and practical work is 80 per cent. and more shall be graduated with honor. A general average below 80 per cent. and not less than 70 per cent. shall be considered satisfactory. *Certificates* are awarded at the end of the first year.

TUITION FEES.

Per year, \$150. Payable: upon entering, \$75; in the following January, \$75. Tuition will not be refunded except in case of protracted illness, when the School will share the loss with the student.

Students furnish their own text-books, gymnastic dress, and shoes. There is no extra charge for lockers.



GYMNASIUM.

The Building.

The School is at present located in the Paine Memorial Building, 9 Appleton Street, between Tremont and Berkeley Streets, and is accessible by horse-cars and steam-trains from all parts of Boston and suburban towns.

The gymnasium is thoroughly equipped with Swedish apparatus.

The lecture hall is furnished with adjustable chairs and desks.

Better facilities for heating the building have been provided.

A hot luncheon from the New England Diet Kitchen is served to those students who desire it, at the rate of seventy-five cents per school week.

On the last Friday of each month there is held an informal reception, to which students and their friends are invited.

Library and Apparatus.

The library of about a thousand volumes and hundreds of photographs relating to the subjects of physical training and pedagogy are open and accessible to the students.

For the use of the lectures on anatomy and physiology there are skeletons, mounted and disarticulated, anatomical preparations of articulations and ligaments, both dry and alcoholic, charts, and a French manikin (*anatomie elastique du Docteur Auzoux*), made up of about two thousand sections, that can be detached as in a dissection.

Additions to the library and to the apparatus are made constantly.

ANTHROPOMETRIC INSTRUMENTS.

There is a complete set of the machines used in the best American gymnasia, those recommended by the American Association for the Advancement of Physical Education. There is also an entire set of the Demeny machines for tracing the form of the thorax and studying the respiratory mechanism.

Register of Students.

1892-93.—Juniors.

Adams, Sarah McAllister	Auburndale.
Angier, Alice	Newton.
Ballantyne, Bertha Lennie	Newtonville.
Brackett, Angie Louise	Lancaster, Mass.
Cummings, Edith Lillian	Fitchburg.
Dowd, Ella	New Berne, N.C.
Fancher, Lenore, B.S.	Mt. Vernon, Ia.
Fowle, Julia Langdon	Newton Centre.
Fuller, Maria Louise	Malden.
Gamwell, Olive Wells	Providence, R.I.
Holden, May Morrill	Weymouth.
Hunter, Marion Dexter	West Newton.
Kite, Rebecca	Germantown, Philadelphia, Pa.
McLeod, Mae Lorraine, Ph.B.	Williamsburg, Ia.
Merrill, Fanny Allen	East Braintree.
Patrick, Augusta Lane	West Newton.
Peppeard, Bertha Alice	Boston.
Potter, Mabel Louise	Fairhaven.
Smith, Annie Singleton	Norfolk, Va.
Stoddard, Sophia Louise	Quincy.
Talbot, Mary Eloise	Boston.
Tower, Bessie Patterson	Auburndale.
Trask, Harriett Edna	Dixfield, Me.
Treat, Blanche Evelyn	Chelsea.
Ward, Alice Goodrich	Newton Centre.
Warner, Bessie Haywood	Florence.
Whitten, Mary Willina	Jamaica Plain.
Wonson, Edith Marien	Gloucester.
Young, Evaline,	Philadelphia, Pa.

1892-93.—Seniors.

Adams, Bertha Louise	Dorchester.
Adams, Jessie Richards	Natick.
Barnes, Bessie Louise	Brookline.
Instructor of teachers' class, Rockland and Medford, Mass.	
Bates, Mary Elizabeth	Wollaston Heights.
Bemis, Blanche Agnes	Allston.
Bissett, Florence Gertrude	Berkley.

Boudren, Sarah Ellen	Bridgeport, Ct.
Instructor of private classes.	
Briggs, Lulu May	Grinnell, Ia.
Burke, Annie Ethel	Quincy.
Carney, Loretto Fish	Boston.
Chattle, Amy Joanna	Laconia, N.H.
Clapp, Harriet Almira	Easthampton.
Dispeau, Florence	Pawtucket, R.I.
Drew, Lillian Curtis	Boston.
Instructor of class in Women's Educational and Industrial Union.	
Drummond, Sarah Williams	Winslow, Me.
Ela, Ida Louise, B.A.	Rochester, Wis.
Emery, Jesse Fremont	Dorchester.
Farnum, Grace	Brookline.
Instructor of teachers' class in Salem.	
Gould, Edith Talbot	West Newton.
Greene, Alma Lucilla	Waltham.
Instructor of private class.	
Hill, Edith Louise	Providence, R.I.
Hippisley, Grace Edmands	West Medford.
Hubbard, Mary	Roxbury.
Jacobs, Sarah Jane	Dorchester.
Kilbourn, Martha	South Lancaster.
Lathrop, Helen Saunders	Providence, R.I.
Marvin, Julia Rogers	Brookline.
Instructor of private class.	
Moakler, Olive Frances	Medford Hillside.
Moseley, Mary	Dorchester.
Morse, Mabel Serena	Dorchester.
Perry, Florence L.	Braintree.
Randall, Harriet Noyes	Portland, Me.
Instructor in North End Union.	
Rogers, Helen Hood	Wenham.
Instructor of teachers' class, Stoneham.	
Ryder, Josiah Peterson, S.B.	East Boston.
Instructor at McLean Asylum, Somerville.	
Salisbury, Ethel	Providence, R.I.
Salisbury, Florence Perry	Providence, R.I.
Instructor of private classes.	
Salkeld, Grace Luana	Perry, Ohio.
Smith, Constantia Waldron	Newton Centre.
Tobey, Miriam Amelia	Brookline.
Instructor of private class, Cambridge.	
Warner, Marjorie Fleming	Washington, D.C.
Whittemore, Ruth Ballou	Dorchester.
Willard, Ursula Margaret	Barton, Vt.
Wonson, Susan Louise	Gloucester.



GYMNASIUM.

Register of Graduates.

1891.

NAME AND RESIDENCE.	OCCUPATION.
GORDON, Bessie F., Arlington, Mass.	Director of Physical Training, Public Schools of Lynn, Brookline, and Gloucester.
HARRISON, Corrinne, New Berne, N.C.	Instructor in Gymnastics and Principal of Hemenway School, Norfolk, Va.
HOPKINS, Maude G., Boston.	Director of Physical Training, Drexel Institute, Philadelphia, Pa.
LIVINGSTONE, C. Isabelle, Boston.	Instructor in Vocal and Physical Culture, Burnham Classical Institute, Northampton, Mass.
MILLER, Sarah E., Boston.	Instructor in Vocal and Physical Culture, Girls' High School, Boston.
NICHOLS, Mary E., Dorchester.	Third Assistant, Mather School, Dorchester, Mass.
PLUMMER, Laura S., E. Boston.	Second Assistant and Instructor in Physical Training, Boston Normal School.
SHEPPARD, Clara E., Newton, Mass.	Instructor in Boston Normal School of Gymnastics.
SMITH, Sarah R., Beverly, Mass.	First Assistant, Bowdoin School, Boston.
WALLACE, Margaret S., Newtonville, Mass.	Instructor in Boston Normal School of Gymnastics.
WATSON, Grace Oliver, Boston.	Died Nov. 24, 1892.
WOODS, Helen A., Ayer.	Director of Physical Training, State Normal School, Oshkosh, Wis.

1892.

NAME AND RESIDENCE.	OCCUPATION.
BARTLETT, Bertha, Somerville.	Instructor in Gymnastics, McLean Asylum, Somerville.
HANCHETT, Annie M., San José, Cal.	Practitioner: Medical Gymnastics.
MARTIN, Eva May, Chautauqua, N.Y.	Instructor in Gymnastics, Drexel Institute, Philadelphia, Pa.
MAY, Helen Frances, Newton Highlands.	Instructor in Gymnastics, Roxbury High School.

NAME AND RESIDENCE.	OCCUPATION.
METCALF, Alice, Cambridge.	Director of Physical Training, Public Schools of Concord, Mass.
METCALF, Mary, Cambridge.	
PEDRICK, Catherine F., S.B., Lawrence.	Instructor in Gymnastics, Milford, Mass., and Bristol, R.I.
PERRIN, Ethel, West Newton.	Assistant, Boston Normal School of Gym- nastics.
WELLINGTON, Ethel Lovering, Arlington.	Director of Physical Training, Public Schools of Lawrence and Canton.
WHELDEN, Alice M., Campello.	
WRIGHT, Elizabeth A., Medford.	Instructor in Gymnastics, Smith College, Northampton.

STUDENTS WHO HAVE RECEIVED CERTIFICATES FOR
ONE YEAR'S WORK AND ARE IN POSITIONS.

1891.

NAME AND RESIDENCE.	OCCUPATION.
BERRENSON, Senda, Boston.	Director of Physical Training, Smith College, Northampton.
GARLAND, Josephine, So. Barton, Vt.	Third Assistant, Brimmer School, Boston.
LAWRENCE, Elizabeth C., A.M., Newton Centre.	Married April 5, 1892, to Professor S. F. Clarke, Williams College.
MACOMBER, Sarah N., Roxbury.	Third Assistant, Franklin School, Boston.
RUSSELL, Laura S., So. Boston.	Third Assistant, Parkman School, Boston.
SMALL, Alice M., Taunton, Mass.	Instructor in Gymnastics, Hampton College, Louisville, Ky.
SMITH, Katherine F., Pittsfield, N.H.	Instructor in Gymnastics, South Schools, Hartford, Conn.
STEVENS, Annie M., Exeter, N.H.	Instructor in Vocal and Physical Culture, Science Hill School, Shelbyville, Ky.
TOWNE, Lillian M., Brighton.	Second Assistant, Bennett School and Teacher of Gymnastics in High School, Brighton.

1892.

BABCOCK, Emma Huntington, Providence, R.I.	Instructor, St. Margaret's School, Water- bury, Ct.
BARNES, Martha McC., Waltham.	Instructor, Public Schools, Waltham, Wo- burn and Wellesley.



GYMNASIUM.

NAME AND RESIDENCE.	OCCUPATION.
COCHRAN, Julia Myrtilla, Louisville, Ky.	Private Gymnasium, Louisville, Ky.
DAME, Daisy Gertrude, West Medford.	Principal of Kindergarten, Boston.
DAME, Isabel Gerry, West Medford.	Principal of Kindergarten, Boston.
FOGLER, Grace Edna, Augusta, Me.	Instructor, Dr. Sargent's Normal School of Physical Education, Cambridge.
GREENE, Alliston, Westboro.	Director of Physical Training, Westboro Reform School.
HOWE, Grace Harding, Newton Centre.	Instructor in Gymnastics, Hampton Nor- mal School, Hampton, Va.
MANDELL, Marian Compton, Newton.	Instructor in gymnastics, Miss Carrol's School, Boston.
NICHOLS, Alice, La Crosse, Wis.	Private Gymnasium, La Crosse, Wis.
PHILLIPS, Mary Jencks, Oneida, N.Y.	Married Nov. 16, 1892, to Mr. Wm. A. Buck, Willimantic, Conn.
SMITH, Mabel Frances, Andover.	Teacher, Andover Public Schools.
TAYLOR, Sarah May, Winslow, Me.	Director of Physical Training, Public Schools, Pawtucket, R.I.
WESTCOTT, Laura Sprague, Winchester.	Teacher, Cambridge.

SPECIAL STUDENTS.

ANNA MOBERG, Sjundeå, Finland.	Practitioner, Medical Gymnastics.
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Outline of Lectures.

JUNIOR COURSE.

FIRST TERM.

(1) *In Physics*.—2 hours a week. Lectures illustrated by experiments and demonstrations, with special reference to physiology and gymnastics.

(2) *In Chemistry*.—3 hours a week. 1 lecture (or recitation) and 2 hours of laboratory work in general chemistry, with special reference to physiology and gymnastics.

SECOND TERM.

(3) *In General Biology*.—5 hours a week. 2 lectures or recitations and 3 hours of laboratory work. An Introduction to Biology. The use of the microscope. Study of organisms, organs, tissues, cells, protoplasm, a representative plant, and a representative animal. Dissection of the earthworm and the frog. Elementary ideas of growth, reproduction, differentiation, environment, metabolism, sensation, reflex actions, histology, etc.

THIRD TERM.

(4) *In Comparative (Vertebrate) Anatomy*.—5 hours a week. 2 lectures or recitations and 3 hours of dissection and drawing. Vertebrate, and especially mammalian, anatomy, with a brief review of the salient points of embryology. Detailed anatomy of the cat, dog, and rabbit. Development of the organs in the chick. Special dissections of the muscles, vascular and nervous systems.



SECTION OF LECTURE HALL.

DESCRIPTIVE AND TOPOGRAPHICAL ANATOMY.

This course aims to describe the anatomy of the organs, of cranium, thorax, abdomen, and pelvis; the course of the principal nerves, blood-vessels, and lymphatics, with special reference to their topography, in order that the students may thoroughly understand their relations to each other.

APPLIED ANATOMY AND PHYSIOLOGY.

Definition and classification of the subject.

Selection of exercises for gymnastic purposes, general explanation.

The gymnastic progression in general view.

The gymnastic day's order, general outline.

Kinesiology, the science of movements, the significance of its study for gymnastic work.

Articulations and ligaments, gymnastic knowledge derived from the study of syndesmology.

The muscles, gymnastic knowledge derived from the study of myology.

The heart and the circulatory system, gymnastic knowledge derived from their study.

The lungs, gymnastic knowledge derived from the study of the respiratory system.

The brain, spinal marrow, and nerves, gymnastic knowledge derived from the study of neurology.

The digestive organs, gymnastic knowledge derived from their study.

The fundamental standing position of the Swedish gymnastics.

The derived gymnastic positions : —

- (a) By change of the position of the upper extremities.
- (b) By change of the position of the lower extremities.
- (c) By change of the position of the trunk and the whole body.

The rhythm of the gymnastic movements generally considered.

Gymnastic apparatus and words of command.

Analysis of exercises : —

Order movements, their characteristics.

Leg movements, their mechanism, effect, and progression.

Strain-bending movements, mechanism, effect, progression.

Heave movements, mechanism, effect, progression.

Balance movements, mechanism, effect, progression.

Back movements, mechanism, effect, progression.

Abdomen movements, mechanism, effect, progression.

Alternate side movements, mechanism, effect, progression.

Fall-out movements, mechanism, effect, progression.

Jump movements, mechanism, effect, progression.

Slow leg movements, mechanism, effect, progression.

Respiratory movements, mechanism, effect, progression.

Composition of the gymnastic day's order, its progression and adaptation to various conditions.

Books : Gray, Quain, Kirk.

EMERGENCY LECTURES.

(1) Description of bones, ligaments, and soft parts. Contents of the skull, of the thorax, and of the abdomen.

(2 and 3) Fractures : lower jaw, skull, vertebræ, ribs, clavicle, humerus, ulnar and radius, Colles fracture, pelvis, femur, tibia and fibula, Pott's fracture.

(4 and 5) Description of ligaments and synovial membrane.

Dislocations : lower jaw, vertebræ, clavicle, shoulder, elbow, wrist, thumb, hip, knee, ankle. Method of reduction.

(6) Define wound. Methods of controlling hemorrhage. Circulation of blood in detail. Points for compression of the important arteries.

(7) Define inflammation. Method of repair after injury. First intention. Second intention. Ligatures. Sutures.

Germ theory. Brief history of aseptic and antiseptic methods of applying a dressing.

(8) Burns and scalds. Treatment. Frost-bite. Thawing out. Gangrene.

Poisoned wounds : snake, dog, or cat ; bites of insects, as scorpion, tarantula, bees, and wasp. Treatment.

(9) Drowning. Rules for treatment. Artificial respiration by Sylvester's method. Suffocation from coal gas, sewer gas, charcoal fumes, etc.

(10) Foreign bodies in throat, nose, eye, and ear. Treatment.

Unconsciousness, from fainting, apoplexy, concussion, compression, intoxication, sunstroke, epilepsy, hysteria, Bright's disease, fracture of skull, narcotic poisons.

(11) General rules for treatment of unconsciousness.

Poisons and their antidotes.

General rules for treatment.

(12, 13, 14, 15) Practical instruction in bandaging on a live model. Roller bandage, circular spiral reverse, figure of eight. Special bandages, as turban, Velpeau, spica, many tailed.

Triangular bandage. How to fold. How applied to different parts of the body.

Transportation of sick and injured : (1) when alone ; (2) with help. Use of stretchers.

Books : Esmarch, Morton, Butler, Heath's Minor Surgery and Bandaging, Treves, Manual of Surgery, American Text-book of Surgery, Gerster's Aseptic and Antiseptic Surgery, Wyeth's Text-book on Surgery.

TRAINING OF THE VOICE.

Careful voice training should be a part of the preparation of every teacher. In teaching class gymnastics, it is especially requisite that the voice command attention and be easily understood.

Care is taken in this department to provide instruction that shall insure a pleasant quality of voice and sufficient strength and clearness to meet the need of teachers.

SENIOR COURSE.

(5) *Physiology and Histology*. — 5 hours a week, from October to April, including 2 hours of lecture or recitation and 3 hours of laboratory work. A general course covering the whole subject, but laying special stress upon Blood, Muscle, and Nerve; The Vascular Mechanism; The Tissues of Chemical Action (Digestion, Secretion, and Absorption); Metabolism; Nutrition; Dietetics; Respiration; Excretion; The Skin; Animal Heat; and other subjects especially relevant to the theory and practice of gymnastics.

PATHOLOGY AND SYMPTOMATOLOGY.

Definitions of terms.

Organic and functional diseases.

Inflammation, acute and chronic.

General diseases.

Scrofulosis.

Tuberculosis.

Catarrhal Inflammations.

Diabetes.

Rheumatism, articular and muscular.

Rheumatic arthritis.

Gout.

Anæmia and chlorosis.

Diseases of nervous system.

Cerebral anæmia and hyperæmia.

Apoplexy and paralysis (central).

Myelitis.

Tabes.

- Neuritis.
- Peripheral paralyses.
- Writers' cramp.
- Neuralgias (general and special).
- Chorea.
- Diseases affecting the respiratory tract.
 - Phthisis (tuberculous and fibroid).
 - Bronchial catarrh.
 - Asthma: spasmodic; bronchial.
 - Pertussis.
- Diseases of circulation.
 - Organic diseases of heart.
 - Valvular lesions, hypertrophy and dilatation.
 - Fatty degeneration.
 - Angina pectoris.
- Diseases of pelvic organs.
 - General and special.

THEORY OF GYMNASTICS AND ART OF TEACHING.

The course in theory of gymnastics and art of teaching is supplementary to the first year's work in the theory of gymnastics, and has a direct bearing upon the practical conclusions to be derived therefrom. It aims to set forth the qualities of a gymnastic lesson which render it effective, safe, and pleasant. An analysis is made of the characteristics that combine to make successful a teacher of gymnastics and of the faults which debar success.

PSYCHOLOGY AND PEDAGOGY.

The purpose of this course is: (1) To give some idea of the principal elementary results of modern psychological inquiry; (2) To cultivate in the members of the class such an interest in the study of mental life, and such habits of

psychological observation and analysis, as will be of most service in the work of the practical teacher ; (3) To introduce the pupils to the more accessible and authoritative modern literature of Psychology, and to guide them as to the conduct of their future reading of such literature ; and (4) To give as clear an idea as possible of the application of psychology to the actual business of teaching.

Books : James (briefer course), Höffding's Psychology.

Examination Questions.

DEC. 18, 1890.

1. What are the parts of a typical vertebra? How are the vertebræ fastened together? What region of the vertebral column is most movable? How do the spinous processes of the vertebræ differ in each region, and what is the reason of the difference?
2. Describe the anterior angle of the scapula. Locate superior angle, subscapula fossa, acromion process, vertebral border, infra-spinous fossa.
3. How do we classify the ribs? how many pairs belonging to each class? What is the angle of a rib, the tuberosity? How do we distinguish the two ends of the rib?
4. What and where are the symphysis pubes, tuberosity of ischium, sacro-iliac symphysis, crest of ilium, anterior superior spinous process?
5. Describe the upper extremity of the ulna; the lower extremity of the tibia.
6. In what region of the skull do we find the meatus auditorius externus, the glenoid fossa, the orbit, the basilar process, the sagittal suture? Through what opening in the skull passes the 1st, or olfactory nerve; the internal carotid artery; the 8th, or auditory nerve; the 9th, 10th, and 11th nerves?
7. How are the valves of the heart formed? Give the name and position of each.
8. Describe the mechanism of the heart's action through an entire cardiac cycle. What is meant by systole, diastole?

9. What is an artery? Give the names applied to the different parts of the aorta, and the limits of each. Give in order the branches from the arch of the aorta.
10. Where does the subclavian artery become the axillary, limit of the axillary, place of division of the brachial? How is the superficial palmar arch formed, and what is the distribution of its branches?

CALL.

MARCH 15, 1892.

1. What arteries supply blood to the hip and thigh, and what of them is supplied by each? Give the primary divisions of the popliteal, course and termination of each.
2. What are *venæ comites*? What veins form the *venæ innominata*, and from what region does each collect the blood? Where do the superficial veins of the lower extremity terminate, and from what parts does each collect the blood?
3. Under what conditions of the heart and blood-vessels should we have the highest possible arterial pressure? the lowest? Explain how "vaso-motor influence" affects the circulation in the capillaries.
4. What is *hæmoglobin*? Where is it found? Under what circumstances does it differ in its composition? What is the practical use of coagulation of the blood?
5. What and where is the diaphragm? Explain its action in respiration, and the effect of its movement on the different organs.
6. What are the changes which take place between the blood and the air in the lungs? Where does this change take place? What conditions of the body are necessary to the proper mechanism of respiration? What is meant by residual air, tidal air, vital capacity?

7. Locate the stomach, liver, kidneys, small intestines. In what part of the abdomen is the opening from small into large intestines? Where do the intestines leave the pelvis and enter the rectum?
8. What classes of food does gastric juice digest? pancreatic secretion? To what food class or classes belong meat, eggs, bread, milk, potatoes? Which of these contains all classes, and why is it not a sufficient food for an adult?
9. What is the effect of violent muscular exercise on digestion? Why? What is the use of indigestible substances in one's food? Why is very cold food or drink injurious?
10. Describe an intestinal villus and its use.

CALL.

MAY 27, 1892.

1. What nerves form the cervical plexus, brachial plexus, sacral plexus? What is a nerve plexus?
2. Describe the different parts of a cross-section of the spinal cord.
3. Explain why the circulation in the pelvis is more easily disturbed than other parts of the body.
4. Explain why a faulty manner of sitting and standing is liable to affect the pelvic organs injuriously.
5. What parts of the body are supplied by branches from the cervical plexus of nerves, brachial plexus, lumbar plexus, sacral plexus? Which are the nerves of special sensation?
6. Suppose a sensory impression to be made on the sole of the left foot; through what nerve tracts must it pass to reach the cerebrum?
7. Suppose the spinal cord to be completely divided at the level of the last dorsal vertebra; what parts of the

body would be deprived of sensation and voluntary motion? Why?

8. If we tickle the sole of the foot of a person in the same condition as in question 7, through what nerve circuit does the impulse pass that causes the motion produced? To what class of nerve action does this belong?
9. What is meant by an excretion? Name the excretory organs and the excretion peculiar to each. Suppose the renal arteries to be tied so that no blood can pass through the kidneys, what would be the effect, and why?
10. Where do we find the hair follicles, the sweat glands? Explain how the secretion of sweat regulates the temperature of the body.

CALL.

DEC. 18, 1891.

1. Describe the alto-axoid articulation, and name some gymnastic movements in which the full extent of the elementary motions of this articulation are employed.
2. Describe the movement that responds to the command, "Head backward bend!"
3. Which position of the hip-joint offers the greatest security as landing position from a high jump? Discuss the why.
4. In fundamental standing position are the structures of the knee-joint in a favorable situation for assisting in maintaining the attitude?
5. In such exercises as throwing a swift ball is there a great danger of injuring the elbow-joint?
6. Which joints must be employed in order to raise the arm perpendicularly upward?
7. What is the special advantage of the acromio-clavicular articulation in the movements of the arm?
8. Describe the sterno-clavicular articulation.

9. In what manner is the sterno-clavicular articulation affected by carrying weights by the hands?
10. Give the characteristic difference of the syndesmology of the hand and the foot.

ENEBUSKE.

APRIL 1, 1892.

1. Which are the different ways in which muscles can participate in an exercise, and which must be considered in making a mechanical analysis of the positions and movements of the body?
2. Give illustration by example of those different ways of muscular participation in an exercise.
3. In standing, twisting of the trunk to side, which are motor muscles?
4. In sitting, backward bending of the trunk, which muscles are particularly brought into action, and in what manner?
5. From cross (*d*) starting position take stretch standing position by flinging of arms sideways upward. Which muscles produce the movement, and which offer the antagonistic resistance?
6. How many are the scalmi muscles, and how attached?
7. What is the action of the scalmi muscles?
8. In prone-transverse-lying, downward bending of the trunk, which muscles do the greater part of the work, and in what manner are they employed?
9. Describe serratus magnus muscle.
10. Discuss its action.

ENEBUSKE.

JUNE 3, 1892.

1. Explain the general and essential features of the strain-bend movements.
2. Explain the relation of the abdominal movements to the great functions of the body.

3. State the difference between backward bend of trunk, done with a view to produce the effect of a strain-bend movement, and an abdominal movement.
4. To which class of movements would you refer exercises deduced from the arch-stoop standing position?
5. Discuss the reasons for your statement under question 4.
6. Compare the boom and the parallel bar as apparatus in the service of rational pedagogical gymnastics.
7. Write a general schedule of gymnastic day's orders suitable to a class of ladies of the same previous training as your own, applied to work in a complete Swedish gymnasium surrounded by 3 acres of playground, limited as to time an hour.
8. Describe a game that you think would be suitable as part of a gymnastic lesson, under following conditions: gymnasium 50 x 100 feet, full equipment with Swedish apparatus, class of 100 boys, age 13-17, and which place in the day's order would you prefer to give it.
9. Answer the same question as 8, with the difference that the class is composed of 100 girls, age 12-16.
10. Which movements do you consider most efficient to counterwork exaggerated posterior dorsal curve?

ENEBUSKE.

EMERGENCIES.

1. Describe the circulation of the blood.
2. Cardinal points of a fracture. Treatment of a fractured ulna at its mid point; of the femur at its upper third.
3. Describe an improvised tourniquet. How and where apply pressure to control the subclavian, the brachial, and femoral arteries.
4. What is inflammation? What is first intention? What are the principles for treating an incised wound?

5. What is a dislocation? Describe Koehm's method of reducing dislocated shoulder.
6. Treatment for bite of a snake, of a dog, of a scorpion.
7. Give the method of treating an apparently drowned person.
8. Name the different degrees of injury from a burn. Give the treatment for the emergency. How treat frozen toes.
9. Name the methods used in transporting an unconscious person.
10. What can be done in a case of poisoning until the arrival of a physician?

CONANT.

EXAMINATION IN HISTOLOGY.

DECEMBER, 1891.

1. What are the characteristics of connective tissue? Name the principal classes of common connective tissue, and give the characteristic which distinguishes each.
2. Describe the process by which the three germinal layers of the embryo are formed. Give the name and relative position of each.
3. What is epithelium? Where is it found? Name and describe some of the chief kinds of epithelial cells.
4. What is a gland, a secretion, an excretion? Give examples of each.
5. Describe the process of secretion of the gastric juice.
6. Describe an intestinal villus and its use.
7. Describe the circulatory apparatus of the liver.
8. What are the uses of the perspiration? Where are the sebaceous glands? What is the nature of their secretion, and what is its use?
9. Describe a urinary tubule from origin to termination. What is the most important constituent of the urine?

- From what is it derived, and what are the consequences of its retention in the system?
10. What kind of a gland is the pancreas? What is the general structure of glands of this kind? How is the secretion of an intermittent gland excited?

CALL.

PATHOLOGY.

MARCH 16, 1892.

1. What are the pathological changes in the tissues characteristic of each stage of acute inflammation?
2. Give the symptoms characteristic of anæmia. What is meant by primary anæmia, secondary anæmia?
3. How would you distinguish an attack of acute cerebral anæmia from one of acute cerebral hyperæmia?
4. What is "writers' cramp"? Give the principal symptoms. What other occupations cause similar affections?
5. What symptoms would lead you to suspect the beginning of an attack of chorea? What are characteristic of a fully developed case? What is the average duration and the prognosis of chorea?
6. What are the principal causes of organic disease of the heart? What is meant by valvular insufficiency, valvular obstruction? Explain how these changes in the valves are usually caused.
7. What symptoms would lead you to suspect disease of the heart in a pupil? How are the valvular troubles "compensated" in the early stages of the disease?
8. What is kyphosis, lordosis, scoliosis? How would you distinguish the different stages of spinal curvature (not arising from Pott's disease) with regard to probability of cure? In a right side scoliosis of the dorsal region, what would be the condition of the other parts

of the spinal column? Same in regard to a dorsal kyphosis.

9. Explain how the organs of the pelvis are sustained in their place, and what is the relation of the uterus to the other pelvic organs.
10. Give the symptoms which would lead you to infer disease of the pelvic organs.

CALL.

EXAMINATION IN ELEMENTARY PSYCHOLOGY.

NOVEMBER, 1891.

1. Give in two or three sentences a statement of the general nature of mental life according to what was suggested in the opening lecture of the course.
2. What is a reflex action? Illustrate some very simple instance of a single reflex action. Then show how certain very complicated activities, such as those of a business man during his day's work, may be considered as made up of a series of acts, each one of which conforms to the general type of reflex action.
3. What is meant by inhibition, and how may very complicated mental activities go on without immediately showing themselves by marked outward physical signs?
4. Illustrate the classification of the facts of mental life, as given in the lectures and in Höffding's *Psychology*, by naming mental phenomena that belong to each of the three fundamental classes. Show also by illustration how the three classes are combined in any one act of mental life, and give as general a statement as you can of the process that, in consequence of this combination, is always going on in our minds.
5. Summarize briefly, after Höffding, the growth of our ideas of what the mind, or self, is, as we pass from in-

fancy to maturity. Illustrate by the parallel case of growth from savage to civilized ideas on the same subject.

6. Name and briefly describe the most ordinary derangement of the elementary feelings and emotions. What is meant by illusion, by delusion, and by hallucination? Describe some of the elementary disorders of the will. Have you ever seen signs of any of the foregoing mental disorders in children? If so, describe as well as you can what you remember of the case. Use, if you choose, your own experiences as a child, so far as you remember them, to illustrate this point. State the general law of the parallelism between the phenomena of mental disorder in the adult and of imperfect mental development in the child.
7. What discussion in Preyer's book has so far most interested you? State what you can remember of this discussion. If your own observations of children have ever suggested to you different results from those of Preyer in any case, state the difference, and give your own impression as to the matter.

ROYCE.

PSYCHOLOGY.

MAY 23, 1892.

1. Give an account of the general character of normal mental development, indicating briefly and in general terms what part is played in this development by the following factors :—
 - (a) Temperament.
 - (b) Habit.
 - (c) Inhibition, and the struggle for control among the various tendencies to action.
 - (d) The tendency to "organization."
 - (e) The tendency to "segmentation."

2. Give some account of the directions in which the memory may best be trained, and of the means to be used in training it.
3. Give a brief general description of the principal structures and centres of the human brain and spinal cord. Indicate in the most general fashion what is known of the functions of each of these centres.
4. Discuss after Preyer and the lectures the principal defects of the speech-function; that is, the principal forms of aphasia.
5. Expound in a general way after the lectures the contrast between will and intellect, and illustrate the nature of the intellectual functions by a brief statement of the processes of perception.

ROYCE.

TOPICS FOR ESSAYS GIVEN TO SENIOR CLASS
APRIL, 1892.

1. Give a comparative exposition of the anatomy of the hand and the foot, with reference to the mechanical functions of those members.
2. The orthopedic element in the Swedish gymnastic school-drill.
3. Characteristics of the qualities necessary to be displayed by a teacher in leading a drill in Swedish pedagogical gymnastics in order to bring out the best possibilities of the Ling system.

"Too much as well as too little exercise destroys strength."
— ARISTOTLE.

"No person finds fault with those that are ugly by nature, but only with those who are so through want of gymnastic exercises or through carelessness." — ARISTOTLE.

"Of the faults of the body, those which are in our power are blamed, but those which are not in our power are not blamed." — ARISTOTLE.

"The actions and the habits are not in the same manner voluntary; for we are masters of our actions from the beginning to the end, since we know of the particulars; but we are masters only of the beginning of our habits." — ARISTOTLE.

"Happiness consists in living and energizing, and the energy of the good man is good and pleasant in itself." — ARISTOTLE.

